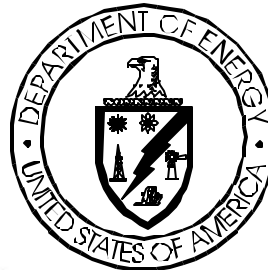


DOE/WIPP-95-2065  
REV. 8  
JUNE 2004

**WASTE ISOLATION PILOT PLANT  
CONTACT HANDLED (CH)  
WASTE DOCUMENTED  
SAFETY ANALYSIS**



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## ACRONYMS

|    |                |   |
|----|----------------|---|
| 1  | <b>AC</b>      | Administrative Control                                    |
| 2  | <b>ACGIH</b>   | American Conference of Governmental Industrial Hygienists |
| 3  | <b>ACGLF</b>   | Adjustable Center-of-Gravity Lift Fixture                 |
| 4  | <b>ALARA</b>   | As Low As Reasonably Achievable                           |
| 5  | <b>ANS</b>     | American Nuclear Society                                  |
| 6  | <b>ANSI</b>    | American National Standard Institute                      |
| 7  | <b>ARF</b>     | Airborne Release Fraction                                 |
| 8  | <b>ARMS</b>    | Area Radiation Monitors                                   |
| 9  | <b>ASME</b>    | American Society of Mechanical Engineers                  |
| 10 | <b>BIR</b>     | Baseline Inventory Report                                 |
| 11 | <b>BLM</b>     | Bureau of Land Management                                 |
| 12 | <b>BOP</b>     | Balance of Plant  |
| 13 | <b>BR</b>      | Breathing Rate  |
| 14 | <b>CA</b>      | Radiological Controlled Area                              |
| 15 | <b>CAO</b>     | Carlsbad Area Office (DOE)                                |
| 16 | <b>CAM</b>     | Continuous Air Monitor                                    |
| 17 | <b>CBFO</b>    | Carlsbad Field Office (DOE)                               |
| 18 | <b>CD</b>      | Containers Damaged  |
| 19 | <b>CEDE</b>    | Committed Effective Dose Equivalent                       |
| 20 | <b>CFR</b>     | Code of Federal Regulations                               |
| 21 | <b>CH</b>      | Contact Handled   |
| 22 | <b>CI</b>      | Container Inventory                                       |
| 23 | <b>CMR</b>     | Central Monitoring Room                                   |
| 24 | <b>CMS</b>     | Central Monitoring System                                 |
| 25 | <b>D&amp;D</b> | Decontamination and Decommissioning                       |
| 26 | <b>DAC</b>     | Derived Air Concentration                                 |
| 27 | <b>DBA</b>     | Design Basis Accident                                     |
| 28 | <b>DBE</b>     | Design Basis Earthquake                                   |
| 29 | <b>DBT</b>     | Design Basis Tornado                                      |
| 30 | <b>DCF</b>     | Dose Conversion Factor                                    |
| 31 | <b>DID</b>     | Defense in Depth  |
| 32 | <b>DOE</b>     | Department of Energy                                      |
| 33 | <b>DOE-AL</b>  | Department of Energy, Albuquerque                         |
| 34 | <b>DOE-EM</b>  | Department of Energy, Office of Environmental Restoration |
| 35 | <b>DOT</b>     | Department of Transportation                              |
| 36 | <b>DR</b>      | Damage Ratio  |
| 37 | <b>DSA</b>     | Documented Safety Analysis                                |
| 38 | <b>EEG</b>     | Environmental Evaluation Group                            |
| 39 | <b>EFB</b>     | Exhaust Filter Building                                   |
| 40 | <b>EOC</b>     | Emergency Operations Center                               |
| 41 | <b>EPA</b>     | Environmental Protection Agency                           |
| 42 | <b>FAA</b>     | Federal Aviation Administration                           |
| 43 | <b>FAS</b>     | Fixed Air Sampler   |
| 44 | <b>FGE</b>     | Fissile Gram Equivalent                                   |
| 45 | <b>FHA</b>     | Fire Hazard Analysis                                      |
| 46 | <b>FM</b>      | Facility Manager  |
| 47 | <b>FMD</b>     | Facility Manager Designee                                 |
| 48 | <b>FSM</b>     | Facility Shift Manager                                    |

## ACRONYMS

|    |              |   |
|----|--------------|---|
| 1  | <b>GET</b>   | General Employee Training                               |
| 2  | <b>FY</b>    | Fiscal Year   |
| 3  | <b>GPDD</b>  | General Plant System Design Description                 |
| 4  | <b>HAZOP</b> | Hazard and Operability Study                            |
| 5  | <b>HEPA</b>  | High Efficiency Particulate Air                         |
| 6  | <b>HVAC</b>  | Heating, Ventilation, and Air Conditioning              |
| 7  | <b>ICV</b>   | Inner Containment Vessel                                |
| 8  | <b>INEEL</b> | Idaho National Engineering and Environmental Laboratory |
| 9  | <b>LCO</b>   | Limiting Condition for Operation                        |
| 10 | <b>LCS</b>   | Limiting Control Setting                                |
| 11 | <b>LPF</b>   | Leakpath Factor   |
| 12 | <b>LPU</b>   | Local Processing Unit                                   |
| 13 | <b>LWA</b>   | Land Withdrawal Act                                     |
| 14 | <b>MAR</b>   | Material at Risk  |
| 15 | <b>MgO</b>   | Magnesium Oxide   |
| 16 | <b>MOC</b>   | Management and Operating Contractor                     |
| 17 | <b>MOI</b>   | Maximally Exposed Offsite Individual                    |
| 18 | <b>MOU</b>   | Memoranda of Understanding                              |
| 19 | <b>MSDS</b>  | Material Safety Data Sheet                              |
| 20 | <b>MSHA</b>  | Mine Safety and Health Administration                   |
| 21 | <b>NFPA</b>  | National Fire Protection Association                    |
| 22 | <b>NIST</b>  | National Institute of Science and Technology            |
| 23 | <b>NMIMT</b> | New Mexico Institute of Mining and Technology           |
| 24 | <b>NUREG</b> | Nuclear Regulatory Guide                                |
| 25 | <b>NRB</b>   | Nuclear Review Board                                    |
| 26 | <b>NRC</b>   | Nuclear Regulatory Commission                           |
| 27 | <b>NVP</b>   | Natural Ventilation Pressure                            |
| 28 | <b>OCV</b>   | Outer Containment Vessel                                |
| 29 | <b>ORNL</b>  | Oak Ridge National Laboratory                           |
| 30 | <b>ORPS</b>  | Occurrence Reporting Processing System                  |
| 31 | <b>OSHA</b>  | Occupational Safety and Health Administration           |
| 32 | <b>PA</b>    | Public Address or Performance Assessment                |
| 33 | <b>PE-Ci</b> | Plutonium Equivalent Curie                              |
| 34 | <b>PMF</b>   | Probable Maximum Flood                                  |
| 35 | <b>ppmv</b>  | Parts per Million Volume                                |
| 36 | <b>Pu</b>    | Plutonium   |
| 37 | <b>QA</b>    | Quality Assurance                                       |
| 38 | <b>QAPD</b>  | Quality Assurance Program Description                   |
| 39 | <b>RCRA</b>  | Resource Conservation and Recovery Act                  |
| 40 | <b>RCT</b>   | Radiological Control Technician                         |
| 41 | <b>rem</b>   | roentgen equivalent man                                 |
| 42 | <b>REMS</b>  | Radiation Effluent Monitoring System                    |
| 43 | <b>RF</b>    | Respirable Fraction                                     |
| 44 | <b>RFAR</b>  | Radio Fire Alarm Reporter                               |
| 45 | <b>RH</b>    | Remote Handled  |
| 46 | <b>RMA</b>   | Radioactive Material Area                               |
| 47 | <b>RWP</b>   | Radiation Work Permit                                   |
| 48 | <b>SAR</b>   | Safety Analysis Report                                  |

**ACRONYMS**

|    |                |  |
|----|----------------|--|
| 1  | <b>SDD</b>     | System Design Descriptions                         |
| 2  | <b>SEIS</b>    | Supplement Environmental Impact Statement          |
| 3  | <b>SH</b>      | Salt Handling                                      |
| 4  | <b>SL</b>      | Safety Limit                                       |
| 5  | <b>SNL</b>     | Sandia National Laboratories                       |
| 6  | <b>SR</b>      | Surveillance Requirement                           |
| 7  | <b>SSC</b>     | Structures, Systems, and Components                |
| 8  | <b>STD</b>     | Standard   |
| 9  | <b>Sv</b>      | Sievert  |
| 10 | <b>SWB</b>     | Standard Waste Box                                 |
| 11 | <b>TDOP</b>    | Ten Drum Overpack                                  |
| 12 | <b>TEDE</b>    | Total Effective Dose Equivalent                    |
| 13 | <b>TLD</b>     | Thermoluminescent Detector                         |
| 14 | <b>TLV</b>     | Threshold Limit Value                              |
| 15 | <b>TRU</b>     | Transuranic  |
| 16 | <b>TRUPACT</b> | Transuranic Package Transporter                    |
| 17 | <b>TSR</b>     | Technical Safety Requirements                      |
| 18 | <b>U/G</b>     | Underground  |
| 19 | <b>UBC</b>     | Uniform Building Code                              |
| 20 | <b>UPS</b>     | Uninterruptible Power Supply                       |
| 21 | <b>USQ</b>     | Unreviewed Safety Questions                        |
| 22 | <b>VOC</b>     | Volatile Organic Compound                          |
| 23 | <b>VPP</b>     | Voluntary Protection Program                       |
| 24 | <b>WAC</b>     | Waste Acceptance Criteria                          |
| 25 | <b>WACC</b>    | Working Agreement for Consultation and Cooperation |
| 26 | <b>WHB</b>     | Waste Handling Building                            |
| 27 | <b>WIPP</b>    | Waste Isolation Pilot Plant                        |
| 28 | <b>WTS</b>     | Washington TRU Solutions LLC                       |
| 29 | <b>WWIS</b>    | WIPP Waste Information System                      |

**ACRONYMS**

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## GLOSSARY OF TERMS

1 ABNORMAL CONDITION. Any deviation from normal conditions that adversely affects or  
2 potentially adversely affects the safety performance of the facility.

3  
4 ACCEPTABLE KNOWLEDGE. An Environmental Protection Agency (EPA) term which includes  
5 process knowledge and results from previous testing, sampling, and analysis associated with the  
6 waste. Acceptable knowledge includes information regarding the raw materials used in a process  
7 or operation, process description, products, and associated wastes. Acceptable knowledge  
8 documentation includes the site history and mission, site-specific processes or operations,  
9 administrative building controls, and all previous and current activities that generate a specific  
10 waste.

11  
12 ACCIDENT. An unplanned sequence of events that results in undesirable consequences.

13  
14 ACCIDENT ANALYSIS. The term accident analysis refers to those bounding analyses selected for  
15 inclusion in the documented safety analysis (DSA). The accident analysis is the systematic  
16 development of numerical estimates of the expected consequence and frequency of potential  
17 accidents.

18  
19 ACTINIDE. An element in the actinide series beginning with element 89 and continuing through  
20 element 103. All the transuranic (TRU) nuclides considered in this document are actinides.

21  
22 ACTIVE INSTITUTIONAL CONTROL. (1) Controlling access to a disposal site by any means other  
23 than passive institutional controls, (2) performing maintenance operations or remedial actions at  
24 a site, (3) controlling or cleaning up releases from a site, or (4) monitoring parameters related to  
25 disposal system performance (40 CFR § 191.12).

26  
27 ACTIVITY. A measure of the rate at which a material emits nuclear radiation, usually given in terms of  
28 the number of nuclear disintegrations occurring in a given length of time. The unit of activity  
29 used in this document is the curie (Ci).

30  
31 ADMINISTRATIVE CONTROLS (AC). Provisions relating to organization and management,  
32 procedures, record keeping, assessment, and reporting necessary to ensure the safe operation of  
33 the facility.

34  
35 AIR DISPERSION FACTOR. The ratio of the average concentration of a hazardous constituent released  
36 into the atmosphere to its maximum concentration at or beyond the unit boundary.

37  
38 AIR IMMERSION. The pathway of direct external dose from a passing cloud of dispersed radioactive  
39 material.

40  
41 AIRLOCK. An intermediate chamber between zones of different static pressure.

42  
43 ALARA. As Low As Reasonably Achievable; radiation protection program for minimizing personnel  
44 exposures.

45  
46 ALPHA PARTICLE. A positively charged particle emitted in the radioactive decay of certain  
47 radionuclides. Made up of two protons and two neutrons bound together, it is identical to the  
48 nucleus of a helium atom. It is the least penetrating of the three common types of radiation;  
49 alpha, beta, and gamma radiation, but has the highest ionization factor.



---

**GLOSSARY OF TERMS**

1 AMERICIUM-241. A TRU element resulting from the beta decay of plutonium-241.

2  
3 ATMOSPHERIC DISPERSION. Movement of a contaminant due to the cumulative effect of the random  
4 motions of air.

5  
6 BACKFILL. Magnesium Oxide (MgO) material placed on top of a stack of waste containers, partially  
7 filling the open space in the disposal room.

8  
9 BALANCE OF PLANT. Facility structures, systems, and components (SSCs) that are not designated as  
10 Safety Class, Safety Significant, or Defense in Depth.

11  
12 BARRIER. Any material or structure that prevents or substantially delays movement of water and/or  
13 radionuclides toward the accessible environment. For example, a barrier may be a geologic  
14 structure, a canister, a waste form with physical and chemical characteristics that significantly  
15 decrease the mobility of radionuclides, or a material placed over and around waste, provided that  
16 the material or structure substantially delays movement of water or radionuclides (40 CFR §  
17 191.12). Barriers also prevent or delay the movement of hazardous constituents.

18  
19 BETA PARTICLE. A negatively charged particle emitted in the radioactive decay of certain  
20 radionuclides; a free electron.

21  
22 BRINE. Saline water containing calcium (Ca), sodium (Na), potassium (K), chlorides (Cl), and minor  
23 amounts of other elements.

24  
25 BOUNDING. Producing greater consequences than other scenarios; or would bound the remainder of  
26 scenarios.

27  
28 CARCINOGEN. An agent capable of producing or inducing cancer.

29  
30 CENTRAL MONITORING ROOM (CMR). A room at the WIPP equipped to monitor alarm functions  
31 and provide reliable communications.

32  
33 CENTRAL MONITORING SYSTEM (CMS). A computer system that monitors the WIPP  
34 instrumentation; operated from the CMR.

35  
36 COMMITTED EFFECTIVE DOSE EQUIVALENT (CEDE). The sum of the committed dose  
37 equivalents to various organs or tissues in the body from radioactive material taken into the body,  
38 each multiplied by the tissue-specific weighting factor. Expressed in terms of rem or Sievert.

39  
40 CONCENTRATION. The amount of a substance contained in a unit quantity (mass or volume) of a  
41 sample.

42  
43 CONSERVATIVE. As a term used with predictions or estimates, conservative means one in which the  
44 uncertain inputs are used in a way that overestimates an adverse impact.

45  
46 CONSEQUENCE. The direct, undesirable result of an accident sequence.

47  
48 CONTACT-HANDLED (CH) WASTE. Transuranic waste with a surface dose rate not greater than  
49 200 millirem per hour.

---

**GLOSSARY OF TERMS**

1 CONTAINER INVENTORY (CI). The amount of radioactive or hazardous material within a container  
2 or source.  
3

4 CREEP. A very slow, usually continuous, time-dependent movement of soil or rock; refers to the  
5 geologic phenomenon experienced as the gradual flow of salt under compressive loading.  
6

7 CRITICALITY. A state in which a self-sustaining nuclear chain reaction is achieved.  
8

9 CROSSCUT. A passageway driven at right angles to the main entry to connect it with a parallel entry or  
10 air course. In room and pillar mining, such as WIPP, the piercing of the pillars at more or less  
11 regular intervals for the purpose of haulage and ventilation.  
12

13 DECOMMISSIONING. Actions taken upon abandonment of the repository to reduce potential  
14 environmental, health, and safety impacts, including repository sealing as well as activities to  
15 stabilize, reduce, or remove radioactive materials or demolish surface structures.  
16

17 DECOMMISSIONING PHASE. The term decommissioning phase means the period of time beginning  
18 with the end of the disposal phase and ending when all shafts at the WIPP repository have been  
19 backfilled and sealed.  
20

21 DEFENSE IN DEPTH (DID). An approach to nuclear facility safety that builds layers of protection  
22 against release of hazardous materials so that no one layer by itself, no matter how good, is  
23 completely relied upon.  
24

25 DEFENSE WASTE. Nuclear waste deriving from the manufacture of nuclear weapons and the operation  
26 of naval reactors. Associated activities, such as the research carried on in the weapons  
27 laboratories, also produce defense waste.  
28

29 DESIGN BASIS. The set of requirements that bound the design of the structure, systems, or components  
30 of the facility.  
31

32 DESIGN BASIS EARTHQUAKE (DBE). An earthquake that is the most severe design basis accident of  
33 this type and that produces the vibratory ground motion for which Safety Class items are  
34 designed to remain functional. The DBE is the most severe credible earthquake that could occur  
35 at the WIPP. DBE SSCs shall be designed to withstand a free-field horizontal and vertical  
36 ground acceleration of 0.1g, based on a 1,000-year recurrence period, and retain their safety  
37 functions.  
38

39 DESIGN BASIS TORNADO (DBT). A tornado that is the most severe design basis accident of that type  
40 applicable to the area under consideration. The DBT is the most severe credible tornado that  
41 could occur at the WIPP as described in Chapter 2. DBT SSCs shall be designed to withstand  
42 the highest winds generated by this tornado (183 mi/h [293 km/h]), based on a 1,000,000-year  
43 recurrence period, and retain their safety function.  
44

45 DESIGN LIFE. The design life of components or systems generally refers to the estimated period of  
46 time that the component or system is expected to perform within specifications before the effects  
47 of aging result in performance deterioration or a requirement to replace the component or system.  
48

---

**GLOSSARY OF TERMS**

1 DISPOSAL FACILITY. A facility or part of a facility into which hazardous waste is intentionally placed  
2 and in which hazardous waste will remain after closure.

3  
4 DISPOSAL PHASE. The term disposal phase means the period of time during which TRU waste is  
5 disposed of at the WIPP, beginning with the initial emplacement of TRU waste underground for  
6 disposal and ending when the last container of TRU waste is emplaced underground for disposal.

7  
8 DISPOSAL ROOM. An excavated cavity in the WIPP underground in which TRU waste will be  
9 emplaced during disposal operations.

10  
11 DISPOSAL SYSTEM. For purposes of defining the Long Term Performance Assessment conceptual  
12 model, the disposal system is defined as the combination of engineered and natural barriers and  
13 other assurances that isolate waste after disposal, or the more general features, events, and  
14 processes that are capable of affecting performance of the disposal unit.

15  
16 DOCUMENTED SAFETY ANALYSIS (DSA). A documented analysis of the extent to which a nuclear  
17 facility can be operated safely with respect to workers, the public, and the environment,  
18 including a description of the conditions, safe boundaries, and hazard controls that provide the  
19 basis for ensuring safety. DSA replaces the term "safety analysis report."

20  
21 DOSE. A general term used for brevity in place of dose equivalent, effective dose equivalent, committed  
22 effective dose equivalent, etc.

23  
24 DOSAGE. The concentration-time profile for exposure to toxicological hazards.

25  
26 DOSE CONVERSION FACTOR. A numerical factor used in converting radionuclide uptake (curies) in  
27 the body to the resultant radiation dose (rem).

28  
29 DOSE EQUIVALENT. The product of absorbed dose in rad in tissue, a quality factor, and all other  
30 modifying factors at the location of interest. Expressed in rem.

31  
32 DOSE RATE. The radiation dose delivered per unit time (rem per hour).

33  
34 DRIFT. A horizontal passageway in a mine.

35  
36 EFFECTIVE DOSE EQUIVALENT (EDE). The sum of the products of the dose equivalent received by  
37 specified tissues of the body and a tissue-specific weighting factor. Expressed in rem.

38  
39 EFFLUENT. Wastewater or airborne emissions discharged into the environment.

40  
41 EMPLACEMENT. At the WIPP, the placing of radioactive wastes in the repository.

42  
43 ENGINEERED BARRIERS. Backfill, seals, and any other man-made barrier components of the disposal  
44 system.

45  
46 EVENT. A phenomenon that occurs instantaneously or within a short time interval relative to the time  
47 frame of interest.

---

**GLOSSARY OF TERMS**

1 EVENT TREE. A logic model that graphically portrays the combinations of events and circumstances in  
2 an accident scenario.

3  
4 EXCLUSIVE USE AREA. This area of approximately 290 acres is surrounded by a five-strand barbed  
5 wire fence and is restricted for the use of DOE, its contractors and subcontractors in support of  
6 the WIPP. This area is posted against trespass and is excluded from use by the general public.  
7 However, public access to the LWA (16 section) area up to the Exclusive Use Area is allowed  
8 for grazing purposes (see Figure 5.2-1 and the WIPP Land Management Plan).

9  
10 FACILITY. Any equipment, structure, system, or component, or activity that fulfills a specific purpose.  
11 For the purpose of implementing DOE Standard 3009-94, Preparation Guide for U.S. Department  
12 of Energy Nonreactor Nuclear Facility Documented Safety Analyses, the definition most often  
13 refers to buildings, and other structures, their functional systems and equipment, and other fixed  
14 systems and equipment installed therein to delineate a facility.

15  
16 FACILITY WORKER. A worker directly involved in the operation of the facility or process (handling  
17 waste containers) when an accidental release occurs.

18  
19 FAULT TREE. A tree-like cause-and-effect diagram of hypothetical events. Analysis of fault trees is  
20 used to investigate failures in a system or concept.

21  
22 FILTER BANK. An arrangement of air filters in series and/or parallel.

23  
24 FISSILE. Describes a nuclide that undergoes fission on absorption of neutrons of any energy, in  
25 particular, slow neutrons provided the effective thermal neutron production cross section exceeds  
26 the effective thermal neutron absorption cross section.

27  
28 FREQUENCY. The number of occurrences per unit time at which observed events occur or are  
29 predicted to occur.

30  
31 GAMMA RADIATION. Short-wavelength electromagnetic radiation emitted in the radioactive decay of  
32 certain radionuclides; high-energy photons.

33  
34 GAS GENERATION RATE. The combined gas production rate from all species of gases produced as a  
35 result of TRU waste transformations such as corrosion, microbial degradation, and/or radiolysis  
36 at any given time. The rate of gas production throughout the history of the repository is expected  
37 to vary depending on repository conditions with respect to humidity, total or partial brine  
38 inundation, competitive reactions that absorb specific gases, and the ability of the repository to  
39 retain the gases generated. The term is also applied to individual gases.

40  
41 GENERATOR AND/OR STORAGE SITES. Refers to the DOE sites nationwide where TRU wastes are  
42 generated and/or stored as a result of activities associated with nuclear weapons production.

43  
44 GROUNDWATER. Water below the land surface in a zone of saturation.

45  
46 GROUND SHINE. The pathway of direct external dose received from radioactive material that has  
47 deposited on the ground after being dispersed from the accident site.

## GLOSSARY OF TERMS

1 HAZOP. Hazard and Operability Study. A systematic method in which process hazards and potential  
2 operating problems are identified using a series of guide words to investigate process deviations.

3  
4 HAZARD. A source of danger (i.e., material, process, energy source) with the potential to cause illness,  
5 injury, or death, loss of use, or loss of property.

6  
7 HAZARD ANALYSIS. The determination of material, system, process, and plant characteristics that  
8 can produce undesirable consequences, followed by the assessment of hazardous situations  
9 associated with a process or activity. Largely qualitative techniques are used to pinpoint  
10 weaknesses in design or operation of the facility that could lead to accidents. A Hazard Analysis  
11 examines the complete spectrum of potential accidents that could expose members of the public,  
12 onsite workers, facility workers, and the environment to hazardous materials.

13  
14 HAZARDOUS CONSTITUENT. Those chemicals identified in Appendix VIII of 40 CFR Part 261.

15  
16 HAZARDOUS MATERIAL. Any solid, liquid, or gaseous material that is toxic, explosive, flammable,  
17 corrosive, or otherwise physically or biologically threatening to health. Candidate hazards  
18 include radioactive materials and hazardous chemicals.

19  
20 HAZARDOUS WASTE. A hazardous waste as defined in 40 CFR § 261.3.

21  
22 HEADSPACE GASES. The free gas volume at the top of a closed container (between the container lid  
23 and the waste inside the container) or containment, such as a drum or bin, containing TRU-mixed  
24 or simulated waste. The gas may be generated from biological, chemical, or radiolytic processes;  
25 this would include contributions from volatile organic compounds (VOCs) present in the waste.

26  
27 HEPA FILTER. A high efficiency particulate air filter usually capable of 99.95 percent efficiency as  
28 measured by a standard photometric test using 0.3-micron droplets (aerodynamic equivalent  
29 diameter) of dioctylphthalate (DOP).

30  
31 HORIZON. In geology, an interface indicative of a particular position in a stratigraphic sequence. For  
32 instance, the waste-emplacement horizon in the Salado Formation at the WIPP is the level about  
33 650 meters (2,150 feet) deep where openings are mined for waste disposal.

34  
35 HUMAN ERROR. Any action (or lack thereof) that exceeds some limit of acceptability where the limits  
36 of human performance are defined by the system. Includes actions by designers, operators, or  
37 managers that may contribute to or result in accidents.

38  
39 HUMAN FACTORS. A discipline concerned with designing machines, operations, and work  
40 environments to match human capabilities, limitations, and needs.

41  
42 IN SITU. In the natural or original position. The phrase is used in this document to distinguish in-place  
43 experiments, rock properties, and so on, from those measured in the laboratory.

44  
45 INITIATING EVENT. The first event in an event sequence that can result in an accident unless  
46 engineered protection systems or human actions intervene to prevent or mitigate the accident.

## GLOSSARY OF TERMS

1 INSTITUTIONAL CONTROLS. Human actions to control a waste management facility such as the  
2 WIPP. Institutional controls are described as active and passive. Active institutional controls are  
3 defined in 40 CFR § 191.12 as: (1) controlling access to a disposal site by any means other than  
4 passive institutional controls, (2) performing maintenance operations or remedial actions at a  
5 site, (3) controlling or cleaning up releases from a site, or (4) monitoring parameters related to  
6 disposal system performance. Passive institutional controls are defined in 40 CFR §191.12 as:  
7 (1) permanent markers placed at a disposal site, (2) public records and archives, (3) government  
8 ownership and regulations regarding land or resource use, and (4) other methods of preserving  
9 knowledge about the location, design, and contents of a disposal system.

10  
11 INTENSITY, EARTHQUAKE. A measure of the effects of an earthquake on humans and structures at a  
12 particular place. Not to be confused with magnitude.

13  
14 INTERNATIONAL SYSTEM OF UNITS (SI). The version of the metric system which has been  
15 established by the International Bureau of Weights and Measures and is administered in the  
16 United States by the National Institute of Standards and Technology. The abbreviation for this  
17 system is SI.

18  
19 ISOTOPE. An atom of a chemical element with a specific atomic number and atomic weight. Isotopes  
20 have the same number of protons, but different number of neutrons.

21  
22 LAND DISPOSAL. Emplacement in or on the land, except in a corrective action management unit, and  
23 includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection  
24 well, land treatment facility, salt dome formation, salt bed formation, underground mine or cave,  
25 or placement in a concrete vault, or bunker intended for disposal purposes.

26  
27 LAND WITHDRAWAL ACT. Public Law 102-579, as amended by Public Law 104-201 (H.R. 3230,  
28 104th Congress--1996), which withdraws the land at the WIPP site from entry, appropriation, and  
29 disposal; transfers jurisdiction of the land from the Secretary of the Interior to the Secretary of  
30 Energy; reserves the land for activities associated with the development and operation of the  
31 WIPP; and includes many other requirements and provisions pertaining to the protection of  
32 public health and the environment.

33  
34 LIKELIHOOD. A measure of the expected probability or frequency of an event occurrence.

35  
36 LIMITING CONDITION FOR OPERATION (LCO). The lowest functional capability or performance  
37 levels of safety-related structures, systems, or components.

38  
39 LONG TERM. Refers to the 10,000 years after shaft sealing for which performance assessment  
40 calculations and models assess the behavior of the repository with respect to compliance with 40  
41 CFR Part 191 and 194.

42  
43 LOWER EXPLOSIVE LIMIT (LEL). The lower limit of flammability of a gas or vapor at ordinary  
44 ambient temperatures expressed in percent of the gas or vapor in air by volume. This limit is  
45 assumed constant for temperatures up to 120 °C (250 °F).

46  
47 MAGNESIUM OXIDE (MgO). A white powder that (depending on the method of preparation) may be  
48 light and fluffy, or dense; melting point 2800 °C; insoluble in acids, slightly soluble in water.

## GLOSSARY OF TERMS

1 MAGNITUDE, EARTHQUAKE. A measure of the total energy released by an earthquake. Not to be  
2 confused with intensity.

3  
4 MAXIMALLY EXPOSED OFFSITE INDIVIDUAL (MOI). A hypothetical member of the public who  
5 is exposed to a release of radionuclides in such a way that the individual will receive the  
6 maximum dose from such a release. Review of the WIPP LMP indicates that public access to the  
7 WIPP 16-section area up to the Exclusive Use Area shown is allowed for grazing purposes, and  
8 up to the DOE Off Limits Area for recreational purposes. Although analyses are traditionally  
9 conducted for a MOI at the facility site boundary, in accordance with Appendix A of DOE-STD-  
10 3009-94, the location of the MOI is at the closest point of public access, or the WIPP Exclusive  
11 Use Area. The location of the MOI is also consistent with guidance for the implementation of 40  
12 CFR 191, Subpart A.

13  
14 Exposure to the MOI is greatest at the Exclusive Use Area (closest distance a member of the  
15 public may get to the release point due to LMP access restrictions) due to the dispersion model  
16 chosen for accident analysis. As discussed in detail in DSA Section 5.2, the release is a non-  
17 plume release (vent release as defined in Nuclear Regulatory Guide 1.145), not subject to plume  
18 lofting or fumigation conditions. The dose to an individual is therefore greatest at the closest  
19 allowable access distance to the point of release.

20  
21 MEAN. The average value. For a given set of  $n$  values, the mean is the sum of their values divided by  $n$ .

22  
23 MEDIAN. The median of a set of data is the value such that half of the observations are less than that  
24 value and half are greater than that value.

25  
26 MERCALLI INTENSITY. A scale of measurement of earthquake intensity.

27  
28 MITIGATE. To take practicable means to avoid or minimize release of hazardous or radioactive material  
29 or consequences to a hypothetical individual or population,

30  
31 MITIGATION. Equipment and/or procedures designed to interfere with accident propagation and/or  
32 reduce accident consequences

33  
34 MIXED WASTE. Mixed waste contains both radioactive and hazardous components, as defined by the  
35 Atomic Energy Act and the Resource Conservation and Recovery Act, respectively.

36  
37 NASH DRAW. A shallow valley, approximately 5 mi (8.1 km) wide, open to the southwest located to  
38 the west of the WIPP.

39  
40 NORMAL CONDITIONS. All activities associated with the facility mission carried out within defined  
41 process conditions, performance in accordance with procedures, etc.

42  
43 NORMAL OPERATION. All normal conditions that frequency estimation techniques indicate occur  
44 with a frequency greater than 0.1 events per year.

45  
46 OFFSITE. A position located at or beyond the WIPP Site Boundary.

## GLOSSARY OF TERMS

1 OFF LIMITS AREA. An area consisting of approximately 1454 acres which is posted in accordance  
2 with 10 CFR Part 860 and has been designated as such in the Federal Register. This area is  
3 managed by an off-limits policy which allows DOE to authorize the use of the area as they  
4 determine the need. Public access to the WIPP LWA (16 section) area up to the Off Limits Area  
5 is allowed for recreational purposes (see Figure 5.2-1 and the WIPP Land Management Plan).  
6

7 ONSITE. A position located within the WIPP Site Boundary.  
8

9 ONSITE WORKER. An onsite worker not involved in the operation of the facility when a release  
10 occurs. For accident analysis consequence assessment, the maximally exposed onsite  
11 noninvolved worker is assumed to be located at a distance of 100 meters from each release point  
12 due to restrictions on dispersion modeling used in this safety analysis at close-in distances (<100  
13 meters).  
14

15 OVERPACK. A container put around another container. Overpacking includes placing waste drums  
16 into larger drums, SWBs or TDOPs; or SWBs within a TDOP; or placing pipe components into a  
17 drum. This provides an additional barrier that will reduce the damage ratio should a breach  
18 occur.  
19

20 PACKAGE. In the regulations governing the transportation of radioactive materials, the packaging  
21 together with its radioactive contents as presented for transport.  
22

23 PACKAGING. A shipping container without its contents.  
24

25 PANEL. A group of several underground rooms connected by drifts. Within the WIPP, a panel consists  
26 of seven rooms connected by drifts at each end.  
27

28 PARTICULATES. Solid particles small enough to become airborne.  
29

30 PASSIVE INSTITUTIONAL CONTROLS. (1) Permanent markers placed at a disposal site, (2) public  
31 records and archives, (3) government ownership and regulations regarding land or resource use,  
32 and (4) other methods of preserving knowledge about the location, design, and contents of a  
33 disposal system (40 CFR § 191.12).  
34

35 PERFORMANCE ASSESSMENT. A term used to denote quantitative activities carried out to evaluate  
36 the long-term ability of the WIPP to effectively isolate the waste, to ensure long-term health and  
37 safety of the public in accordance with 40 CFR Parts 191 and 194.  
38

39 PILLAR. In metal mines pillars are the part of ore left between the individual rooms and entries to  
40 support the overlying strata.  
41

42 PLUTONIUM. A metallic, radioactive element, symbol Pu, atomic number 94, in the actinide series of  
43 elements; used as a nuclear fuel, to produce radioactive nuclides for research, and as the fissile  
44 agent in nuclear weapons.  
45

46 POST CLOSURE PERIOD. A designated period of time beginning with the end of the  
47 Decommissioning Phase and extending through the end of the regulatory time frame of 10,000  
48 years.  
49



## GLOSSARY OF TERMS

1 POTASH. A potassium compound, especially as used in agriculture or industry.

2  
3 PREVENTIVE FEATURE. Any structure, system, or component that serves to prevent the release of  
4 hazardous material in an accident scenario.

5  
6 PROPERTY PROTECTION AREA. The interior core of the facility, comprised of about 35 acres (14  
7 hectares) and is bordered by a chain link security fence (see Figure 5.2-1).

8  
9 PUBLIC. Defined in DOE-STD-3009-94 as individuals outside of the DOE Site Boundary. However,  
10 review of the WIPP LMP indicates that public access to the WIPP 16-section area up to the  
11 Exclusive Use Area is allowed for grazing purposes, and up to the DOE Off Limits Area for  
12 recreational purposes. Although accident analyses consequences are traditionally conducted for  
13 a maximally exposed off-site individual (MOI) at the facility site boundary, in accordance with  
14 Appendix A of DOE-STD-3009-94, the location of the public (MOI) for accident consequence  
15 assessment in this safety analysis is at the closest point of public access, or the WIPP Exclusive  
16 Use Area. The location of the MOI is also consistent with guidance for the implementation of  
17 40 CFR 191, Subpart A.

18  
19 PUBLIC LAW 96-164. The U.S. Department of Energy National Security and Military Applications of  
20 Nuclear Energy Act of 1980. Public Law 96-164 directed the DOE to proceed with the design  
21 and development of the WIPP.

22  
23 PUBLIC LAW 102-579. *See* Land Withdrawal Act.

24  
25 QUALITY ASSURANCE (QA). The planned and systematic actions necessary to provide adequate  
26 confidence that a structure, system, or component will perform satisfactorily in service.

27  
28 RADWASTE. Solid, liquid and gaseous materials from nuclear operations that are radioactive or  
29 become radioactive and for which there is no further use.

30  
31 REASONABLE. (1) Not conflicting with reason, (2) not extreme or excessive, (3) having the faculty of  
32 reason, or (4) possessing sound judgement.

33  
34 RELEASE POINT. There are two release points for the TRU and mixed wastes accidents described in  
35 the DSA, the Exhaust Filter Building exhaust to the atmosphere and the WHB HEPA filtration  
36 exhaust to the atmosphere.

37  
38 REM. A common unit of dose equivalent, effective dose equivalent, etc.

39  
40 REMOTE HANDLED (RH) WASTE. Transuranic waste with a surface dose rate of 200 millirem per  
41 hour or greater. RH-TRU waste received at the WIPP may not exceed a surface dose rate of  
42 1,000 rem per hour [Public Law 102-579, Section 7(a)(1)(A)].

43  
44 REPOSITORY. The portion of the WIPP underground system within the Salado Formation, including  
45 the access drifts, waste panels, and experimental areas, but excluding the shafts.

46  
47 RISK. In accident analysis, the probability of weighted consequences of an accident defined as the  
48 accident frequency per year multiplied by the consequences.

## GLOSSARY OF TERMS

1 RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) PERMIT APPLICATION. An  
2 application, which is submitted by the owner/operator of a hazardous waste management unit to  
3 the state (if authorized by the EPA) or to the EPA, for a RCRA permit to operate the unit.  
4

5 RESOURCES. Mineralization that is concentrated enough, in large enough quantity, and in physical and  
6 chemical forms such that extraction is currently or potentially feasible and profitable.  
7

8 RETRIEVABLE. Describes storage of radioactive waste in a manner designed for recovery without loss  
9 of control or release of radioactivity.  
10

11 ROOM. An excavated cavity within a panel in the underground. Within the WIPP, a room is about 33 ft  
12 (10 m) wide, 13 ft (4 m) high, and 300 ft (91 m) long.  
13

14 SAFETY ANALYSIS. A documented process: (1) to provide systematic identification of hazards within  
15 a given DOE operation; (2) to describe and analyze the adequacy of the measures taken to  
16 eliminate, control, or mitigate identified hazards; and (3) to analyze and evaluate potential  
17 accidents and their associated risks.  
18

19 SAFETY ANALYSIS REPORT (SAR). See Documented Safety Analysis.  
20

21 SAFETY BASIS. The combination of information relating to the control of hazards at a facility  
22 (including design, engineering analyses, and administrative controls) upon which the DOE  
23 depends for its conclusion that activities at the facility may be conducted safely.  
24

25 SAFETY CLASS. Safety Class SSCs are structures, systems, or components whose preventive or  
26 mitigative function is necessary to keep radiological material exposure to the public below the  
27 offsite Evaluation Guideline (EG). The EG is 25 rem (250 mSv) total effective dose equivalent  
28 (TEDE). The dose estimates to be compared to it are those received by a hypothetical  
29 maximally-exposed offsite individual (MOI) at the site boundary.  
30

31 SAFETY SIGNIFICANT. SSCs not designated as Safety Class, but whose preventive or mitigative  
32 function is a major contributor to defense in depth and/or worker safety as determined from  
33 hazards analysis. Safety Significant SSC designations based on worker safety are limited to  
34 those structures, systems, or components whose failure is estimated to result in a prompt worker  
35 fatality or serious injuries or significant radiological or chemical exposure to workers.  
36

37 DOE G 151.1-1 Hazards Surveys and Hazards Assessment uses 100 rem (1 Sv) whole body  
38 exposure as a threshold for early severe effects. It also acknowledges that early severe effects  
39 would not actually be experienced for a 50-year dose of 100 rem (1 Sv) due to alpha emitters.  
40

41 SCENARIO. A combination of naturally occurring or human-induced events and processes that  
42 represent realistic future changes to the repository, geologic, and geohydrologic systems that  
43 could cause or promote the escape of radionuclides and/or hazardous constituents from the  
44 repository.  
45

46 SEAL. An engineered barrier designed to isolate the waste and to impede fluid flow in the shafts.  
47

48 SHAFT PILLAR. The cylindrical volume of rock around a shaft from which major underground  
49 openings are excluded in order that they not weaken the shaft.

## GLOSSARY OF TERMS

1  
2 SIEVERT. The SI unit of any quantities expressed as dose equivalent. (1 Sv = 100 rem)

3  
4 SITE BOUNDARY. The boundary encompassing the WIPP 10,240 acres (LWA 16 sections).

5  
6 SLUDGE. Refers to de-watered CH TRU wastes containing both organic and inorganic constituents that  
7 must meet the Waste Acceptance Criteria for shipment and disposal at the WIPP. High sludges  
8 are CH TRU waste where the sludge component constitutes 50 percent or more of the waste  
9 volume; low sludges are the same type of waste containing less than 50 percent by volume of  
10 sludge.

11  
12 SOURCE TERM. Source term is the quantity of radioactive or hazardous constituents available for  
13 transport or the maximum concentration of hazardous constituents in a particular phase,  
14 depending on the type of information available.

15  
16 STANDARD WASTE BOX (SWB). A waste container measuring approximately 6 by 4.5 by 3 ft (1.8  
17 by 1.4 by 0.9 m) high, with rounded ends.

18  
19 TECHNICAL SAFETY REQUIREMENTS (TSR). Those requirements that define the conditions, safe  
20 boundaries, and the management or administrative controls necessary to ensure the safe  
21 operation of the facility and to reduce the potential risk to the public and facility workers from  
22 uncontrolled releases of radioactive or hazardous materials.

23  
24 TOTAL EFFECTIVE DOSE EQUIVALENT (TEDE). The sum of the effective dose equivalent (EDE)  
25 from sources external to the body during the year, plus the committed effective dose equivalent  
26 (CEDE).

27  
28 TOXICITY. The ability of a substance to cause damage to living tissue, impairment of the central  
29 nervous system, severe illness or, in extreme cases, death when ingested, inhaled, or absorbed by  
30 the skin.

31  
32 TOXICOLOGICAL HAZARD. Any substance having chemical properties that pose a potential threat to  
33 the public, workers, or the environment.

34  
35 TRANSURANIC NUCLIDE. A nuclide with an atomic number greater than that of uranium (92). All  
36 TRU nuclides are produced artificially and are radioactive.

37  
38 TRANSURANIC PACKAGE TRANSPORTER (TRUPACT)-II. Package designed to transport contact  
39 handled TRU mixed waste to the WIPP. It is a cylinder with a flat bottom and a domed top that  
40 is transported in the upright position.

41  
42 TRANSURANIC WASTE. The term transuranic waste means waste containing more than  
43 100 nanocuries of alpha-emitting TRU isotopes per gram of waste, with half-lives greater than  
44 20 years, except for: (1) high-level radioactive waste, (2) waste that the Secretary has  
45 determined, with the concurrence of the Administrator, does not need the degree of isolation  
46 required by the disposal regulations, or (3) waste that the Nuclear Regulatory Commission has  
47 approved for disposal on a case-by-case basis in accordance with 10 CFR 61.

## GLOSSARY OF TERMS

1 TREATMENT. Means any method, technique, or process, including neutralization, designed to change  
2 the physical, chemical, or biological character or composition of any hazardous waste so as to  
3 neutralize such waste, or so as to recover energy or material resources from the waste, or as to  
4 render such waste non-hazardous, or less hazardous; safe to transport, store, or dispose of; or  
5 amenable for recovery or storage, or reduced in volume.

6  
7 TYPE A PACKAGING. A package designed and certified through performance testing to survive  
8 normal transportation, handling, and minor accidents as set forth in 49 CFR § 173.465 or  
9 173.466. Type A packaging includes cardboard boxes, wooden crates, or drums.

10  
11 TYPE B PACKAGING. A package used for transportation of large quantities of radioactive material and  
12 designed to survive severe accidents more rigorous than those required for Type A packages.  
13 Type B packages have a certification of compliance issued by the NRC.

14  
15 UNINTERRUPTIBLE POWER SUPPLY (UPS). A power supply that provides automatic, instantaneous  
16 power, without delay or transients, on failure of normal power. It can consist of batteries or full-  
17 time operating generators. It can be designated as standby or emergency power depending on the  
18 application. Emergency installations must meet the requirements specified for emergency.

19  
20 VOLATILE ORGANIC COMPOUND (VOC). A RCRA-regulated organic compound that readily  
21 passes into the vapor state. VOCs are present in TRU mixed waste.

22  
23 WASTE ACCEPTANCE CRITERIA. A set of conditions established for permitting TRU wastes to be  
24 packaged, shipped, managed, and disposed of at the WIPP.

25  
26 WASTE CHARACTERIZATION. Sampling, monitoring, and analysis activities to determine the nature  
27 of the waste.

28  
29 WASTE CHARACTERIZATION PROGRAM. The processes of TRU waste analysis as required by the  
30 Hazardous Waste Facility Permit, transportation requirements, and other program requirements.  
31 Analysis includes documentation of waste generation processes, visual examination of waste  
32 components, radiography, and waste assay for radionuclide content. Waste matrix and headspace  
33 gas chemical analyses are also part of the characterization program.

34  
35 WASTE CONTAINER. A term that includes 55-gallon drums, 85-gallon drums, 100-gallon drums,  
36 SWBs, and ten drum overpacks.

37  
38 WASTE FORM. A term used to emphasize the physical and chemical properties of the waste.

39  
40 WASTE MATRIX. The material that surrounds and contains the hazardous constituents and to some  
41 extent protects them from being released into the surrounding rock and groundwater. Only  
42 material within the waste container that contains the waste is considered part of the waste matrix.

43  
44 WASTE STORAGE/DISPOSAL. For the purposes of this documented safety analysis, with regard to  
45 TRU waste: the term storage refers to the temporary storage of that waste above ground; and, the  
46 term disposal refers to that waste which has been emplaced in the underground horizon.

**GLOSSARY OF TERMS**

1 WIPP Site Boundary. An area of land that forms a square, four miles (6.4 km) on a side. It contains  
2 10,240 acres or 4,146 hectares (16 mi<sup>2</sup> or 41.4 km<sup>2</sup>) including Sections 15-22 and 27-34 in  
3 Township 22 South, Range 31East.  
4

5 WORKING AGREEMENT. Appendix B of the Agreement of Consultation and Cooperation, which sets  
6 forth the working details of that Agreement.  
7

8 WORST CASE. A conservative (high) estimate of the consequences of the most severe accident  
9 identified.

**WIPP Contact Handled (CH) Documented Safety Analysis**  
**DOE/WIPP-95-2065 Revision 8**

**CHANGE HISTORY**

| REVISION | AFFECTED SECTIONS                            | DATE  | ADDITIONAL DESCRIPTION OF NATURE OF REVISIONS   |
|----------|--|-------|---|
| 0        | Entire Document                              | 11/95 | Initial Issue   |
| 1        | Entire Document                              | 3/97  | Annual SAR update per DOE Order 5480.23. Incorporation of resolution of external review comments on Revision 0.   |
| 2        | Entire Document Except Appendices A, D,      | 12/97 | Annual SAR Update per DOE Order 5480.23. Incorporation of: (1) resolution of DOE Safety Evaluation Report (SER) Recommendations, (2) Defense Nuclear Facilities Safety Board (DNSFB), and external review comments, and (3) SAR changes as a result of Unreviewed Safety Question (USQ) Safety Evaluations.   |
| 3        | Entire Document Except Appendices A, B, C, D | 11/98 | Annual SAR Update per DOE Order 5480.23. Incorporation of: (1) Unreviewed Safety Question Safety Evaluations processed up to August 19, 1998, (2) CAO comments on the FY-1997 SAR Annual Update, (3) other external review organization comments on the FY-1997 Annual Update, (4) updated safety analyses, and (5) editorial review comments received since the last WID review.   |
| 4        | Entire Document Except Appendices A, B, C    | 11/99 | Annual SAR Update per DOE Order 5480.23. Incorporation of: (1) Unreviewed Safety Question Safety Evaluations processed and implemented up to August 15, 1999, (2) review organization comments on the FY-1998 Annual Update, (3) updated safety analyses, 4) incorporated Change 1 to Revision 3 of the TSRs, and (5) editorial type corrections.   |
| 5        | Entire Document                              | 3/01  | Annual SAR Update per DOE Order 5480.23. Incorporation of: (1) Unreviewed Safety Question Safety Evaluations processed and implemented up to August 15, 2000, (2) review organization comments on the FY-1999 Annual Update, (3) updated safety analyses, (4) incorporation of Atmospheric Dispersion Coefficients (O/Q) utilizing site meteorological data in Appendix E, (5) deletion of text and figures that applied to RH TRU waste only, (6) Chapter 9 has been re-formatted and re-written in its entirety in response to EEG and WID QA comments on Chapter 9 of the RH PSAR (which was identical to the CH SAR), (7) Adjust the accident source terms, for those accidents that involve the breach of multiple containers, so that the damaged drums in any 7-pack contain the entire inventory of 128 PE-Ci with no drum exceeding 80 PE-Ci and damaged SWBs contain an inventory of 130 PE-Ci in Appendix E Source Term and Consequence Calculations, (8) incorporate the deterministic approach to accident analyses required by 10 CFR 830 into the accidents analyzed in Chapter 5, and (9) facility progress and editorial type corrections. |

**WIPP Contact Handled (CH) Documented Safety Analysis  
DOE/WIPP-95-2065 Revision 8**

**CHANGE HISTORY**

| REVISION | AFFECTED SECTIONS                            | DATE | ADDITIONAL DESCRIPTION OF NATURE OF REVISIONS  |
|----------|--|------|--|
| 6        | Entire Document Except Appendices A, B, C, D | 3/02 | Annual SAR Update per 10 CFR 830.2021, Safety Basis.<br>Incorporation of: (1) Unreviewed Safety Question Safety Evaluations processed and implemented up to February 28, 2002 (2) review organization comments on the FY-2000 Annual Update, (3) updated safety analyses, (4) deleted the requirement for the installation of MgO mini-sacks, (5) added use of the Half PACT CH waste shipping package, (6) added receipt and disposal of the 100-gallon drum, S100 neutron shielded pipe overpack, and the S200 gamma shielded pipe overpack CH waste containers, (6) incorporated Change 1 to Revision 5 of the TSRs into Revision 6, (7) updated the toxicological Risk Evaluation Guidelines, and (8) facility progress and editorial corrections. |

1

# WIPP Contact Handled (CH) Documented Safety Analysis

## DOE/WIPP-95-2065 Revision 8

### CHANGE HISTORY

| REVISION | AFFECTED SECTIONS | DATE | ADDITIONAL DESCRIPTION OF NATURE OF REVISIONS   |
|----------|-------------------|------|---|
| 7        | Entire Document   | 3/03 | <p>The update includes incorporation of:</p> <ul style="list-style-type: none"> <li>(1) Unreviewed Safety Question Safety Evaluations processed and implemented up to February 28, 2003,</li> <li>(2) review organization comments on the FY-2002 Annual Update,</li> <li>(3) updated safety analyses,</li> <li>(4) incorporated Functional Classification in accordance with DOE O 420.1A, Facility Safety (Design Class is retained as an historic reference),</li> <li>(5) added use of additional overpack and solidified/vitrified waste containers, approved as Change 1 to the TSR Rev. 6 (USQ Safety Evaluation 02-010),</li> <li>(6) removed use of step function Risk Evaluation Guidelines from the accident analyses to be in closer alignment with DOE-STD-3009-94 Change 2,</li> <li>(7) removed all toxicological Risk Evaluation Guidelines as required by DOE-STD-3009-94 Change 2,</li> <li>(8) increased the evaluated CH waste throughput from 56 to 120 TRUPACT equivalents per week (USQ Safety Evaluation 02-008),</li> <li>(9) considering some amount of possible WHB leakage and or HEPA filter bypass leakage, a DF of 1.0E+04 versus 1.0E+06 for HEPA filtration will be used in the determination of mitigated consequences in the accident analyses,</li> <li>(10) added accident analysis for CH12 (Fire) Breach of Waste Containers Due to Fire Resulting from Forklift Collision in the Underground,</li> <li>(11) added clarification as to what the leading edge of the disposal room waste stack is in the CH11 Roof Fall accident analysis,</li> <li>(12) deleted Appendix A, Table A-5, Random Binomial Sampling from the Distribution of All Equivalent 55 Gallon Waste Containers,</li> <li>(13) deleted infinite horizontal CH waste disposal array in the TSR Section 5.9.11 (USQ Safety Evaluation 02-003, Revision 1),</li> <li>(14) segmented the WIPP facility, in accordance with DOE-STD-1027-92, so that only those systems, structures, and components that contain the nuclear process are classified as Hazard Category 2 and the remainder of the facility is non-categorized, and</li> <li>(15) facility progress and editorial corrections.</li> </ul> |

1



**WIPP Contact Handled (CH) Documented Safety Analysis  
DOE/WIPP-95-2065 Revision 8**

**CHANGE HISTORY**

| REVISION | AFFECTED SECTIONS | DATE | ADDITIONAL DESCRIPTION OF<br>NATURE OF REVISIONS   |
|----------|-------------------|------|--|
| 8        | Entire Document   | 3/04 | (1) Title and text change from Safety Analysis Report to Documented Safety Analysis consistent with the guidance in DOE-STD-3009,<br>(2) Update of Chapter 2 consistent with the RH DSA (Draft), January 2004,<br>(3) Chapter 5 update to a) limit the discussions on quantitative frequency justification consistent with the guidance in DOE-STD-3009-94; b) add fissile mass and Beryllium (Be) mass limits for CH waste; c) add Be to the hazardous material concentrations used in fire scenarios; and d) update consequence analyses for CH5 and CH11 to include over-packed and solidified/vitrified waste,<br>(4) Unreviewed Safety Question Safety Evaluations processed and implemented through February 29, 2004, and<br>(5) Review comments on the Fiscal Year 2004 Annual Update and editorial corrections. |

1

2  
3  
4